

SECTION 3 - DESIGN PROCESS

This Concord River Neighborhood plan is the result of, and in response to, changing needs within the city of Lowell. Initially, a plan completed by TerraSphere in 2000 designated a significant amount of open space and public amenities for the Lower Belvidere Neighborhood. Public input was integral to the planning process for this initial plan. Subsequent analysis related to economic development, funding and growth pressures led the city to rethink the uses outlined in that initial plan for the Concord River Neighborhood Plan area. At that time, the city asked TerraSphere to conduct an urban revitalization study in 2002. The study was later modified to reflect practical land acquisition, ownership and land use as they relate to the neighborhood now and into the future. That larger neighborhood analysis resulted in the city requesting TerraSphere to develop a mixed-use design for the Project Area that would incorporate the major design principles for a planning concept commonly referred to as “New Urbanism.” This approach works well for the development of new communities and can be modified for a redevelopment site such as this. The Project Area possessed characteristics amenable to the New Urbanism planning principles and also sets the framework for developing similar projects throughout the city.



Section through site from Concord River to existing residence on Concord Street

A basic premise of New Urbanism is to create communities or neighborhoods where people live, work and play while automobile dependence is lessened. Therefore, a pedestrian-friendly design approach is warranted. Whether a person is walking on a sidewalk or trail, or is playing in an open field, that person should feel comfortable and safe from motor vehicles and other threats to their personal safety. By placing buildings close to the street, allowing porches or stoops to encroach the front yard setback, and placing a grass-planted tree belt between the sidewalk and road reduces anxiety so people feel safer. Street widths are typically reduced and





Section from Concord River to town homes at top of slope. Views are permitted by clearing beneath groups of existing trees. New Urbanism elements included: trail adjacent to narrow street with parking along one side; trees planted on both sides of street to buffer pedestrians from traffic; town home is closer to street and has an attached front porch.

on-street parking is included to help meet reduced parking ratios. Garages and automobile storage is located off narrow alleys at the back of the property and house lots are smaller to allow for greater community open space. Several different types of housing abut one another while each use is fairly indistinguishable from each other. For example, multifamily or low-income housing should look similar to the single- or two-family building adjacent to it. Residential apartments are encouraged above commercial or retail space and live/work units are woven into the residential and commercial fabric to allow the first story to be used as a small business while occupying the upper story as a residence.

The design approach used by TerraSphere evolved through discussions with the city and incorporation of as many of these principles as practical. It was determined that light industrial, neighborhood commercial/retail and residential uses are needed to make this a viable neighborhood linked to surrounding neighborhoods. Initial discussions with the city revealed a desire to create open space by incorporating taller buildings. The city also reiterated their desire to reveal the underutilized and under-appreciated Concord River as part of this plan.



A) Redevelopment Options

A series of redevelopment options were explored and discussed before arriving at the final recommended plan. A key component throughout the design process was the relationship of the Project Area to the surrounding neighborhood. Furthermore, all of the plans incorporated elements of New Urbanism whenever possible. For example, all plans show a street hierarchy with a main artery that allows parallel parking on both sides, local streets allow parallel parking on one side and rear alleys permit access to buildings whenever practical. Porches are incorporated on buildings that are set close to the street and pedestrian circulation is paramount in all designs. Open space and a trail system are positioned at the top of the slope of the Concord River with various overlooks, seating areas and plantings to accommodate passive and active recreation. Where possible, this open space area is visually and physically linked to nearby property to appear as everyone's "front yard." A pedestrian bridge over the river is also incorporated as an important element that connects both sides of the river in addition to neighborhoods. Each plan also incorporates recreational amenities such as playgrounds, community gardens, plazas, courts and overlooks. Although considered, buildings taller than three stories were not incorporated because they would have challenged the principles of New Urbanism by limiting the mixture of uses and overwhelming the pedestrian-scale. Taller buildings would also be out-of-character with the surrounding neighborhood. Initial designs created a small retail/commercial core surrounded by a variety of residential uses. The commercial/retail uses are scaled to the neighborhood. In all plans, light industrial buildings for "clean" industries anchor the southern end of the site at Rogers Street and relates to industrial uses further to the south across Rogers Street. There is easy access to Rogers Street where more industrial uses are currently located. Two preliminary design options were presented to the city. (see Preliminary Design Option 'A' and Preliminary Design Option 'B' and Table 1 for a summary of uses and building sizes)



i) Option 'A'

Design Option 'A' locates a central retail core and pedestrian spine from Perry Street to the river. This corridor is essential to creating a visual connection from the Project Area and adjacent neighborhood to the activities at the top of the slope leading to the river. The plan responds to current residential uses on the east side of Perry Street by locating detached homes at the north end of the site while light industrial uses anchor the south end. Either residential apartments or offices occupy the second and third stories of many buildings while commercial/retail establishments occupy the first floor of buildings that flank either side of the pedestrian corridor. Live/work units are adjacent to the commercial/retail core; town homes are the next adjacent use while detached units fill the remainder of the north end of the site. Two of the commercial/retail buildings house office space on upper floors while two have residential above. These buildings are the tallest on the site and each occupies 19,800 S.F. They accommodate a total of

26,400 S.F. for each use – commercial/retail, office and residential. A light industrial building is located at the southern end of the site and occupies the largest building of the mix, at approximately 32,000 S.F. The live/work and town home units are attached in either three or five unit buildings. Each live/work unit is 3,200 S.F., with the workspace located on the first floor of the two-story buildings. Each town home is also two stories but at 1,200 S.F. and the two- or three-story detached units are 1,600 to 2,400 S.F. each.



Design Option 'A'



ii) Option 'B'

Design Option 'B' also has a commercial/retail core, but it is located toward the southern end of the site. Three commercial/retail buildings, with office space above, are located adjacent to the light industrial complex. Parking behind the buildings can be shared between all these uses. The commercial/retail with residential above provides a transition to the northern live/work units, town homes and detached units. A commercial building anchors the north end of the site and responds to existing adjacent commercial uses.

The three-story commercial/retail with office or residential uses are the tallest on the site and occupy over 58,000 S.F. Each of these uses are allocated 38,800 S.F. of space. The light industrial buildings are at the south end of the site and occupy 26,000 S.F. Each townhouse is also two stories, but at 1,200 S.F., and the two- or three-story detached units are 1,600 to 2,400 S.F. each.



Design Option 'B'



Table 1 – Summary Options ‘A’ and ‘B’

Use	# of Buildings	Building Unit S.F.	# of Stories	Use Total S.F.	Units
Design Option ‘A’					
Light industrial	1	32,150	1	32,150	
Retail with office above	2	19,800	3		
Commercial/retail			1	13,200	
Office			2	26,400	
Retail with residential above	2	19,800	3		
Commercial/retail			1	13,200	
Residential			2	26,400	24
Live/work units	6 w/3 units ea	3,200 ea	2		18
Work space			1	28,800	
Living space			1	28,800	
Town homes	10 w/3 or 5 units ea	1,200 ea	2	42,000	35
Detached units	29	1,600 – 2,400 ea	2 - 3	69,600- 92,800	29 - 58
Design Option ‘B’					
Light industrial	2	26,000	1	26,000	
Retail with office above	3	58,200	3		
Commercial/retail			1	19,400	
Office			2	38,800	
Retail with residential above	3	58,200	3		
Commercial/retail			1	13,200	
Residential			2	38,800	34
Commercial/retail	1	3,450	1	3,450	
Live/work units	5 w/3 units ea	3,200 ea	2		15
Work space			1	24,00	
Living space			1	24,000	
Town homes	4 w/3 or 5 units ea	1,200 ea	2	21,600	18
Detached units	16	1,600 – 2,400 ea	2 - 3	38,400 – 51,200	16 - 32



B) Final Redevelopment Plan

After reviewing Preliminary Design Options ‘A’ and ‘B’ with the city and community representatives, TerraSphere modified the design to reflect comments and community preferences. In addition, a Segmented Development Plan depicts a redevelopment approach that relates to current land ownership and property boundaries. (see Final Plan, Segmented Development Plan per Land Ownership – Final Plan and Table 2 – Summary Final Plan) This final redevelopment plan keeps the trail along the top of the slope and combines elements from Plans ‘A’ and ‘B’. To take full advantage of river views, a loop road skirts the trail at the top of the slope while remaining adjacent to the trail where possible. This road, adjacent trail and open space system provide the public with full visual access to the river area. The main road connects to Perry Street at existing intersections and a main pedestrian spine is proposed toward the center of the site. The pedestrian spine supports a view corridor to the river and provides a strong connection to surrounding neighborhoods. The commercial/retail core shifted to the north to anchor the design, support neighborhood needs and function synergistically with existing commercial and retail uses to the north and east of the Project Area. To further strengthen the design, the parcels adjacent to the north end between Perry and Concord Streets and Andover to Pond Streets were incorporated within the Project Area. This allowed a strong commercial anchor at a main road intersection. As in the preliminary plans, light industrial buildings anchor the southern end of the site. Community gardens and children’s playgrounds are also located in the open space areas. Parking was expanded further and has fully accommodated all uses in the final design. The alley provides off-street parking and access from the backs of properties. A variety of housing types accommodate a variety of users. (see Proposed Land Use Diagram) The Final Plan is the preferred design option, but if parcel ownership is an issue, a modified plan addresses current ownership at the north end of the site and reflects the current parcel line divisions if some of the current buildings are to remain. (see Final Plan with Modified Commercial and Segmented Development Plan per Land Ownership – Final Plan w/Modified Commercial) Proposed land use is not organized as well in this modified plan, but the proposed uses do correspond better to current land ownership.



The two-story commercial/retail with residential buildings occupy over 31,000 S.F. Each of these uses are allocated 15,600 S.F. of space. There are three separate commercial/retail buildings that provide 14,850 S.F. of business space. The three light industrial buildings at the south end of the site occupy over 30,000 S.F. Each live/work unit is 1,800 S.F. with workspace located on the first floor of the two-story buildings. This plan incorporates two residential apartment buildings that provide a total of 36,800 S.F. of housing on two floors. Each town home is also two stories, but at 1,200 S.F. This plan identifies the three-story detached buildings as two-family units that are 3,000 S.F. each.



Final Redevelopment Plan



Table 2 – Summary Final Plan

Use	# of Buildings	Building Unit S.F.	# of Stories	Use Total S.F.	Units
Final Redevelopment Plan					
Light industrial	3	30,900	1	30,900	
Retail with residential above	2	31,200	2		
Commercial/retail			1	15,600	
Residential			1	15,600	13
Commercial/retail	3	14,850	1	14,850	
Live/work units	4 w/4 units ea	1,800 ea	2	28,800	16
Work space			1	14,400	
Living space			1	14,400	
Town homes	4 w/3, 5, 7 units ea	1,200 ea	2	36,000	30
Residential apartments	2	19,800 17,000	2	36,800	34
Detached two-family units	14	3,000 ea	3	42,000	28
Land Use Summary	S. F.	Acres	% of Total		
Total Project Area	835,000	19.2			
Proposed industrial	110,000	2.52	13		
Proposed commercial	140,000	3.21	17		
Proposed residential	335,000	7.69	40		121
Proposed open space	250,000	5.74	30		
Parking Summary	# of Spaces	Total Available	Total Required		
Spaces off alley	70				
Spaces for commercial, live/work & residential	67				
Spaces for commercial/residential	22				
Parallel spaces along one side of street	67				
Additional commercial	17				
Additional industrial	40				
		283	262		



i) Recommended Zoning

The current zoning in the Project Area will need to be changed to support this type of redevelopment plan. Although the actual layout and design of elements is likely to change when redevelopment occurs, the elements and principles that comprise this plan should be applied. Therefore, zoning must be changed to require that these elements and principles are followed.

Modification of Current Zoning

The city of Lowell has many innovative and creative zoning districts that promote New Urbanism principles and required elements of this integrated Concord River Neighborhood Plan. (*Zoning Book, City of Lowell, July 24, 2001, with approved amendments through October 2002*) However, no one zoning district encompasses all of the principles contained in the plan. Therefore, the creation of a new zoning district is probably the best means to achieve the desired results. However, should the city wish to work within its existing zoning designations, then the current “Planned Development – Mixed Use (PD-MU)” zone is the most appropriate. Additional requirements could be placed upon PD-MU projects located within a “Riverfront” area, that is a site located adjacent to a river or within 200 feet of a river as defined by the Massachusetts Wetland Protection Act, M.G.L. 131 Section 40. Such additional requirements could include further height restrictions to buildings, preservation of view corridors, access to the riverfront, and adherence to certain design guidelines as described in this report. The purpose for these additional requirements should draw upon those purposes as outlined in the description of a new zoning district as described below.

New Zoning Designation

The best means to promote and define how sites such as this are redeveloped may be to establish a new zoning district with the city of Lowell. To build upon the current Lowell Zoning Book, this district could be called “Planned Development – Mixed-Use Neighborhood Riverfront.” This may appear to be a cumbersome name, but all elements of the name have a purpose. The “Planned Development” term is included to reinforce the need for an overall development plan that comprehensively addresses all elements of a successful mixed-use neighborhood. The



Planned Development approach will also alert the developer and Planning Board to the comprehensive approach typically attached to such a term. “Mixed-Use” is included in the title to reinforce the New Urbanism approach to development that incorporates places to work, live and play. “Neighborhood” is included to emphasize that the outcome of any such project should be the creation of a place that feels like a neighborhood, no matter how large or small. There should be an inherent feeling of “community” once a project is completed and the spaces occupied. Finally, “Riverfront” is included to identify that this type of zoning is intended to respond to the unique characteristics found adjacent to rivers.

When preparing language to describe such a district with the Zoning Book, the following elements should be considered, some of which are already found in Lowell’s Zoning Book.

Purpose of the “Planned Development – Mixed Use Neighborhood Riverfront” District

- Promote the appropriate density and mix of uses to create a 24-hour community where residents can live, work and recreate in harmony.
- Establish guidelines for the creation of streets, open space and other public realm elements.
- Establish guidelines for the creation of private buildings, open space, accessory features and architecture.
- Provide physical connections between the river and mixed-use neighborhood.
- Extend public access along the most ecologically feasible portion of the river’s edge to provide public access and serve as the principal framework for organizing the open space network within the proposed neighborhood.
- Protect, enhance and create significant view corridors to the river and to significant features within the planned neighborhood.
- Promote the unified redevelopment of an area using creative and imaginative design.
- Allow for relief from dimensional requirements in exchange for a set-aside of open space areas.
- Promote and encourage the planned and integrated redevelopment of sites that have been previously developed.

Allowed Uses

Using the “Principal Uses” as listed in Lowell’s Zoning Book, the following uses should be allowed in the proposed “Planned Development – Mixed-Use Neighborhood Riverfront” District. Since this type of development will only be allowed through the granting of a Special Permit by



the Planning Board, it is understood that these uses are allowed by Special Permit only. Furthermore, in order to encourage a mixed-use neighborhood, no single use should be allowed to occupy more than 25% of the proposed building square footage, with the exception of residential uses. In that case, no one residential use should be allowed to occupy more than 20% of the proposed floor area, with total residential not exceeding 50% of the proposed floor area. Adequate open space must be provided with visual and physical access to the riverfront. This open space should occupy at least 25% of the total project area.

- Residential – all should be allowed with the exception of mobile homes/trailers.
- Institutional, Recreational and Educational Uses – All should be allowed.
- Retail Business and Consumer Service Uses – Uses that are allowed in the B1 – Local Business District should be allowed because those uses are intended to support the needs of residents in the vicinity, as is the case with this district also.
- Open Air or Drive-In Retail and Service – As with above, be consistent with the B1 zone.
- Automotive and Related Uses – Most, if not all of these uses should not be allowed.
- Utilities and Public Service Uses – This is a unique situation since such uses would not typically be allowed, but in this case the utility company occupies most of the site. In addition, many public utilities follow river corridors. Therefore, they should probably be allowed by Special Permit, but the Design Guidelines should restrict their impact. Transmission towers should not be allowed.
- General Office and Laboratory Use – Should be allowed, provided its overall size is limited, as with retail uses.
- Industrial Uses – Light industry should be allowed provided its size is limited. Heavy industry should not be allowed.
- Scientific Accessory Uses – Not allowed
- Telecommunications facilities – Not allowed
- Artist Live/Work space - Allowed

Dimensional Controls

There should be no requirements for setbacks within the project area. However, around the perimeter of the project area, setbacks should be consistent with those in the abutting zoning district. Setbacks should be considered as per the recommended design guidelines.

Building heights should be limited to conform with the abutting neighborhoods. Site lines to river areas should not be impeded by excessive building heights. However, in no case should building heights be restricted to less than 3-stories or 35 feet in order to promote mixed-use development.



Parking

Parking requirements should be consistent with the parking requirements as presently described in “Article X. Planned Development – Mixed-Use” section of the Lowell Zoning Book. This section requires one (1) space per dwelling unit and one (1) space per each eight hundred (800) square feet of gross floor area for all lawful uses within the zone. However, this language should be modified to allow the total number of on-street and off-street parking spaces in the project area to be applied to the total required in this zoning district, provided that at least one designated off-street parking space is provided per dwelling unit.

When developing the Concord River Neighborhood Plan, much discussion occurred regarding the amount of parking that should be required per dwelling unit. In one sense, the New Urbanism approach is intended to lessen dependence on vehicles. At the same time, one of the problems in the Lower Belvidere Neighborhood is a lack of adequate parking. Therefore, the approach taken for this plan was to require two (2) spaces per dwelling unit. One of these spaces must be a dedicated off-street space, the other can be on-street provided the total number of spaces throughout the district meets or exceeds the required number of parking spaces per lawful use.

Open Space

Within the “Planned Development – Mixed-Use Neighborhood Riverfront” District, at least 25% of the land area should be set aside for active and passive open space use. Due to the location of such a district adjacent to a river, a predominance of this open space area must be adjacent to the river. Since each site and each river is unique, it is difficult to require a specific quantity of open space to be located adjacent to the river. Such a determination should be left to the Planning Board. However, the following principles should be followed when determining the location and design of open space areas.

- Visual Access – The public must be provided visual access to the river. This visual access must occur at various locations and be readily apparent to those members of the public who are using the open space. Structures that severely limit visual access in areas where



visual access currently exists will not be allowed. If necessary, bridges, overlooks and boardwalks should be considered to increase river visibility.

- **Public Access to River** – To the extent possible, there must be public access along the entire riverfront within the project area. Physical access to the water's edge, or to the top of a riverbank must be provided within the requirements of the Massachusetts Wetland Protection Act and Local Wetland Bylaw.
- **Recreational Activity in the River** – The public must be provided with at least one location for physical access to the water for recreational activities. Uses may include fishing, canoeing, kayaking and similar activities. If necessary, a dock, pier, boardwalk or other such structure may be required and allowed to provide such access.
- **Active Open Space** – In addition to the open space requirement related to the river, the project area must also include a mixture of active open space areas. The amount of active open space required will be determined by the amount of existing public recreational facilities within walking distance of the project area. Activities must be located either on-site or within walking distance for all age groups.
- **Passive Open Space** – In addition to the open space requirements related to the river and active open space areas, the project area shall contain an extensive passive open space system. A primary purpose of this open space system shall be to provide areas for walking and biking within the site as well as to connect to trails, sidewalks and walks that connect the project area to adjacent neighborhoods and regional trail systems.

ii) Recommended Design Guidelines

Site Development Principles

The overall site development should accommodate a wide variety of uses with a strong street pattern and supporting architectural character. Open space and neighborhood commercial/retail amenities are also key elements to satisfy the needs of various users and income levels. Development should take advantage of site characteristics and provide safety and security for all users.

Streets and Circulation

Creating an understandable and easy to use street hierarchy is essential to the success of any development project. Pedestrian and vehicular circulation needs to work seamlessly to provide safe passage for all modes of transportation. The following elements should be incorporated when possible:



- Encourage as much on-Street parking as possible
- Hierarchy of streets
 - Main Street - 34' wide
 - Through street - 27' wide
 - Local street - 24' wide
 - Rear Alleys - 12' wide
- Sidewalks on both sides of street, unless no development along one side. Sidewalks 5' wide minimum in residential areas, wider in commercial areas. Sidewalks and trails placed in close proximity to buildings to provide a feeling of personal safety
- Tree belt (5' wide) between sidewalk and street. Trees can be planted in wider sidewalks and plazas in commercial areas
- Provide physical linkage to open space and community amenities
- Provide visual connection to important civic, historic, natural features

Buildings

While streets provide the background, the building pattern provides the structure for a well-planned community. To accommodate all users and income levels, a diversity of housing types should be located in close proximity to each other and to the neighborhood commercial/retail amenities.

- There should be a representative mixture of the following eight housing categories:
 - Apartments above commercial space
 - Multifamily apartment buildings
 - Two- and three-family houses
 - Row houses
 - Live/work row houses
 - Bungalows and patio houses on small lots (30 - 40 feet wide)
 - Houses on standard lots (over 70 feet wide)
- Subsidized housing should be provided in an increment of approximately one subsidized unit per ten market-rate units
- Subsidized housing should be architecturally indistinguishable from market-rate housing
- Residential buildings should be placed relatively close to the street
- Front setbacks should permit the encroachment of semipublic attachments, such as stoops, porches, bay windows, and balconies
- Smaller lots and apartment house lots should access their parking via a rear lane (or alley)
- All commercial buildings should directly front the sidewalk, with all parking lots located behind the building
- Buildings should be permitted to satisfy their parking requirements with spaces located both off- and on-street within one eighth of a mile of the building itself
- All commercial buildings should have a second story (or more) for other uses

